

REMARKS

Claims 15, 17 and 19-26 are pending in this application. By this Amendment, claims 15 and 22-24 are amended. Claims 22-24 are amended only to correct minor informalities, and thus are not narrowed by such amendments. No new matter is added. Reconsideration of the application is respectfully requested.

Applicant appreciates the courtesies shown to Applicant's representative by Examiner Roy in the June 29, 2005 personal interview and the November 3 telephone interview. Applicant's separate record of the substance of the interviews is incorporated into the following remarks.

I. Rejection Under 35 U.S.C. §103(a)

The Office Action rejects claims 15, 17, 19-21, 25 and 26 under 35 U.S.C. §103(a) over U.S. Patent No. 6,618,029 to Ozawa in view of U.S. Patent No. 5,739,635 to Wakimoto; rejects claims 22 and 23 under 35 U.S.C. §103(a) over Ozawa in view of Wakimoto, and further in view of U.S. Patent No. 6,111,356 to Roitman et al. ("Roitman"); and rejects claim 24 under 35 U.S.C. §103(a) over Ozawa in view of Wakimoto, and further in view of Japanese Patent Application Publication No. JP 10-036487. Applicant respectfully traverses the rejection.

A. Formal Matters

The Office Action uses Ozawa as a basis for 35 U.S.C. §103(a) rejections. However, Ozawa is only available as prior art under 102(e). Ozawa was effectively filed on February 25, 1999 and patented on September 9, 2003. The present application was filed on March 23, 2000. Under 35 U.S.C. §103(c), Ozawa is disqualified as prior art against the present application because the subject matter of Ozawa and the present application "were at the time the invention was made, owned by the same person and subject to an obligation of assignment to the same person." Therefore, the rejection is improper.

However, Ozawa claims priority to International Patent Application No. PCT/JP98/02982 published as International Publication No. WO99/01856 on January 14, 1999. Applicant believes that WO99/01856 is available as prior art under 102(a). Thus, Applicant traverses potential rejections based on WO99/01856.

Ozawa (WO99/01856) does not teach or suggest an electroluminescence device including "the bank defining the plurality of pixels by being provided above the substrate so that the bank and the light-emitting layer are non-overlapping and being provided above the edge portions of the anode," as recited in independent claim 15.

B. "continuously formed"

During the personal interview, Applicant's representative asserted that neither Ozawa, Wakimoto, Roitman nor JP 10-036487, alone or in combination, teaches or suggests an electroluminescent device including a thin-film layer being continuously formed so as to cover pixels, a light-emitting layer and a bank. However, Examiner Roy asserted that the phrase "continuously formed" may be construed broadly. Specifically, Examiner Roy asserted that the phrase "continuously formed" may be construed as being formed in any direction, e.g., vertical or horizontal.

For example, Examiner Roy asserted that an electron-injecting layer 6b, e.g., the thin-film layer, of Wakimoto may be considered to be "continuously formed" in a vertical layered direction as shown in Fig. 3. Applicant respectfully submits that the recitation of "the thin-film layer is continuously formed so as to cover the plurality of pixels and being continuously formed so as to cover the light emitting layer and the bank" in claim 15 distinguishes from the vertical layered direction of Wakimoto. Specifically, such recitation discloses a thin-film layer being formed in a direction from one pixel to another pixel and being formed in a direction from a light-emitting layer to a bank. Therefore, the electron-injecting layer 6b is

not formed continuously to cover a plurality of pixels, a light emitting layer and a bank, as set forth in independent claim 15.

Although Examiner Roy asserted that the term "continuously" may be construed broadly, Examiner Roy agreed that vertically continuous is not the same as being horizontally continuous as implicit in the present application. Further, Examiner Roy admitted that Ozawa does not teach or suggest a continuously formed thin-film layer. However, Examiner Roy asserted that Wakimoto remedies the deficiencies of Ozawa.

Specifically, Examiner Roy asserted that Ozawa teaches a continuously formed common electrode op, citing Fig. 6. Examiner Roy also asserted that the teaching of forming a cathode 1 and an electron-injecting layer 6b together is evident in Wakimoto because the electron-injecting layer 6B and a cathode 1 are layered in sequence, citing col. 2, lines 1-8 and col. 4, lines 1-15. Because Wakimoto teaches that electron-injecting layer 6B helps to achieve constant production of an organic EL device so that the EL device is capable of emitting light for a long time, Examiner Roy asserted that the electron-injecting layer 6b of the EL device inherently works to suppress current flowing through the light-emitting layer and improve emitting efficiency of the organic EL device, citing col. 3, lines 5-7. Thus, Examiner Roy asserted that it would have been obvious for one of ordinary skill in the art to replace the continuously formed cathode 'op' of Ozawa with the cathode 1 and electron-injecting layer 6b combined layers of Wakimoto so as to increase light flow.

Although Applicant respectfully submits that the term "continuously formed" may not be construed to cover vertically continuous layers of Ozawa, Applicant amends claim 15 to further clarify the features of the claims.

C. **"the thin-film layer... being continuously formed so as to cover the light-emitting layer and the bank"**

Ozawa (WO99/01856) does not teach or suggest a thin-film layer "being continuously formed so as to cover the light-emitting layer and the bank," as recited in independent claim 15.

Ozawa (WO99/01856) teaches an electroluminescence display device including a bank defining a plurality of pixels 7. See Fig. 3. Each pixel 7 includes a TFT 30, a pixel electrode 41 provided above the TFT 30, a light emission element 40 provided above the pixel electrode 41, and a common/counter-electrode op continuously formed above the bank and the pixel 7. See Fig. 6A and 6B.

During the November 3, 2005 telephone interview, the Examiner acknowledged that Ozawa does not teach or suggest a thin-film layer provided above a light-emitting layer continuously formed so as to cover a plurality of pixels, a light emitting layer and a bank. However, the Examiner asserted that Ozawa teaches, in Fig. 6A, a bank 'op' provided above edge portions of a pixel electrode 41.

The Examiner also maintained her previous assertion that the electron-injecting layer 6B of Wakimoto helps to achieve constant production of an organic EL device so that the EL device is capable of emitting light for a long time, citing col. 3, lines 5-7. Therefore, the Examiner maintained her assertion that the electron-injecting layer 6b of the EL device inherently works to suppress current flowing through the light-emitting layer and improve emitting efficiency of the organic EL device. Thus, the Examiner asserted that it would have been obvious for one of ordinary skill in the art to replace the continuously formed cathode 'op' of Ozawa with the jointly formed cathode 1 and electron-injecting layer 6b of Wakimoto so as to increase light flow.

The Office Action acknowledges that Ozawa does not teach or suggest a thin-film layer provided above a light-emitting layer continuously formed so as to cover a plurality of pixels, a light emitting layer and a bank. However, the Office Action asserts that Wakimoto, Roitman and JP 10-036487 remedies the deficiencies of Ozawa. Notwithstanding these assertions, neither Wakimoto, Roitman nor JP 10-036487, teaches or suggests a thin-film layer being continuously formed so as to cover the light-emitting layer and the bank.

Wakimoto teaches an organic electroluminescence device including an underlying anode 2, and an electron-injecting layer 6b disposed between an emitting layer 3 and a metal cathode 1. See Fig. 3. Wakimoto also teaches that the cathode 1 and the electron-injecting layer 6b are formed to cover only a portion of the emitting layer 3 to facilitate the injection of electrons from a cathode to an emitting layer. See Fig. 3, and col. 1, lines 21-33. Further, Wakimoto is silent about pixel partitions such as banks. Thus, Wakimoto cannot be reasonably considered to teach or suggest a thin-film layer being continuously formed so as to cover a bank.

Even if Wakimoto's jointly formed electron-injecting layer 6b and the cathode 1 may be permissibly combined with the device of Ozawa, such a combination would result in a thin-film layer covering only a portion of the light emitting layer of Ozawa to facilitate the injection of electrons from the cathode to the emitting layer. Because neither Ozawa nor Wakimoto teaches any motivation for having a thin-film layer being continuously formed so as to cover a bank, Ozawa and Wakimoto, alone or in permissible combination, do not teach or suggest the electroluminescence device of claim 15.

Roitman is directed to an organic light emitting device include anodes 13, an insulating-layer 14, polymer light emitting layer 16, and a cathode material 31 deposited through tapered photoresist layers 30 to produce stripes of cathodes 32. See Figs. 4 and 5,

col. 3, lines 34-41, and col. 5, lines 63-67. Roitman does not teach or suggest any thin-film layer.

JP 10-036487 is directed to a fluorine polymer used at a luminescent material of an EL element. See Abstract. JP 10-036487 does not teach or suggest a thin-film layer.

Because Wakimoto, Roitman and JP 10-036487 also fail to remedy the deficiencies of Ozawa (WO99/01856) with respect to claim 15, Ozawa, Wakimoto, Roitman and JP 10-036487 do not, alone or in permissible combination, teach or suggest the electroluminescent device of claim 15.

In the electroluminescent device of claim 15, defects may occur when forming a light-emitting layer using various printing methods. See page 2, lines 5-7 of the specification. Specifically, portions of the light-emitting layer located in the vicinity of the bank may not be formed because of adhesion energy between bank material and light-emitting layer material may not be as good as adhesion energy between anode material and the light-emitting layer material. Therefore, a space may be created between the light-emitting layer and the bank.

If a light-emitting element only includes anodes, light-emitting layers and cathodes as shown in Ozawa (WO99/01856), the anodes and the cathodes may contact via the space between the light-emitting layer and the bank to create an electrical short circuits. See paragraph [0007] of the specification. Further, unnecessary electron trap levels are formed when the light-emitting layer is joined with the cathode and/or the anode. Therefore, the electroluminescent device of claim 15 includes a thin-film layer covering the light-emitting layer and the bank to reduce such undesirable effects. See paragraph [0070] of the specification.

Neither Ozawa (WO99/01856) nor Wakimoto mentions a problem associated with an anode contacting a cathode in which short circuiting may occur. Therefore, a person of ordinary skill in the art would not have found it obvious to combine the teachings of Ozawa

and Wakimoto to form the electroluminescent device of claim 15. Further, neither Ozawa (WO99/01856), Wakimoto, Roitman and JP 10-036487 do not, alone or in permissible combination, teach or suggest such features or provides such advantages discussed above.

For at least the reasons discussed above, claim 15 would not have been rendered obvious by Ozawa (WO99/01856), Wakimoto, Roitman and JP 10-036487, alone or in permissible combination. Claims 17 and 19-26 depend from claim 15, and thus also would not have been rendered obvious by Ozawa (WO99/01856), Wakimoto, Roitman and JP 10-036487, alone or in permissible combination, for at least the reasons set forth above, as well as for the additional features they recite. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 15, 17 and 19-26 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned representative at the telephone number set forth below.

Respectfully submitted,



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Date: November 9, 2005

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